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# **FEDERAL RESERVE BANK OF NEW YORK**



**ANNUAL REPORT  
1981**



**FEDERAL RESERVE BANK OF NEW YORK**

January 28, 1982

To the Depository Institutions in the  
Second Federal Reserve District

I am pleased to present our  
sixty-seventh Annual Report, which this  
year includes a discussion of the long-term  
implications of financial innovation for  
monetary policy.

*Anthony M. Solomon*  
Anthony M. Solomon  
President

*Federal Reserve Bank  
of New York*

**SIXTY-SEVENTH  
ANNUAL REPORT**

*For the Year  
Ended  
December 31, 1981*



*Second Federal Reserve District*

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*Sixty-seventh Annual Report  
Federal Reserve Bank of New York*

## **Financial Innovation and Monetary Policy**

*By* Anthony M. Solomon

*(Remarks given before a Joint Luncheon of the American Economic and American Finance Associations on Monday, December 28, 1981, in Washington, D.C.)*

As I am sure everyone in this room is aware, we are in the midst of a wave of innovation in the financial industry that amounts to a veritable revolution. We are seeing major changes in the kinds of financial instruments and services offered and changes in the institutions that provide these services. This revolution clearly has broad implications—implications for competitive structure and market shares within the financial industry, implications for the availability of financial services to the public, implications for the size and distribution of financial risk in the economy, for the supervision and regulation of financial institutions, and implications for the implementation of monetary policy.

I want to concentrate on a relatively narrow but important aspect of this wave of financial innovation: its impact on the Federal Reserve's use of long-term monetary targets to structure monetary policy. As many of you know, monetary aggregate targeting has been used internally by the Federal Reserve since the early 1970s. Its use was later formalized and made public in response to a Congressional resolution in 1975 and was reaffirmed in the Humphrey-Hawkins legislation of 1978. In October 1979, a substantial change in our operating procedures was made, with the primary objective of enhancing the achievement of our monetary targets.

The formulation of one-year targets for growth of money stock measures (along with an “associated” target for bank credit) seeks to provide a coherent monetary response to endemic inflation. It reflects the perception that, on the monetary side at least, a slowdown in the trend rate of money growth is a necessary condition for restoring price stability. As an approach, however, it makes no commitment to any particular theory of the underlying causes of inflation, to the possible need for other anti-inflation policies, or to the needed precision of monetary control. The monetary targeting approach does serve as an important communications tool. It provides a means for us in the Federal Reserve to check our shorter run and intermediate decisions against a more enduring yardstick. Just as important, it provides a means of communicating our objectives to the Congress and to the public at large, and it gives a standard for reviewing our performance.

In my view, the monetary targeting approach has proved to have substantial value both in formulating and executing policy and in defining the longer term strategy of policy. But it is widely recognized that the usefulness of the approach depends on the existence of measures of money that bear a reasonably stable and predictable relationship to broad economic conditions. The wave of financial innovation we are currently experiencing seems to be producing major effects on these relationships, however, and these effects seem likely to grow larger over time. It seems to me—and I am only offering a personal view—that these effects are having and will continue to have implications for what money measures we target and for the levels at which the targets are set. Perhaps, in the longer run, even the very viability of money stock targets is at stake.

**RECENT PERFORMANCE.** Developments in 1981 have once again pushed to the fore questions about the implication of financial innovation for our targeting process that have been around for some time. The ongoing process of financial innovation seems to have produced a sharp and largely unexpected divergence this year in the performance of the narrow money measures (such as M-1B) and the broader measures (such as M-2 and M-3). In the eleven months through November, M-1B, adjusted for the effects of the introduction of nationwide NOW (negotiable order of withdrawal) accounts at the beginning of the year, rose at a 2.8 percent annual rate. The comparable rates for the broader measures M-2 and M-3, however, were 10.1 percent and 11.3 percent, respectively.

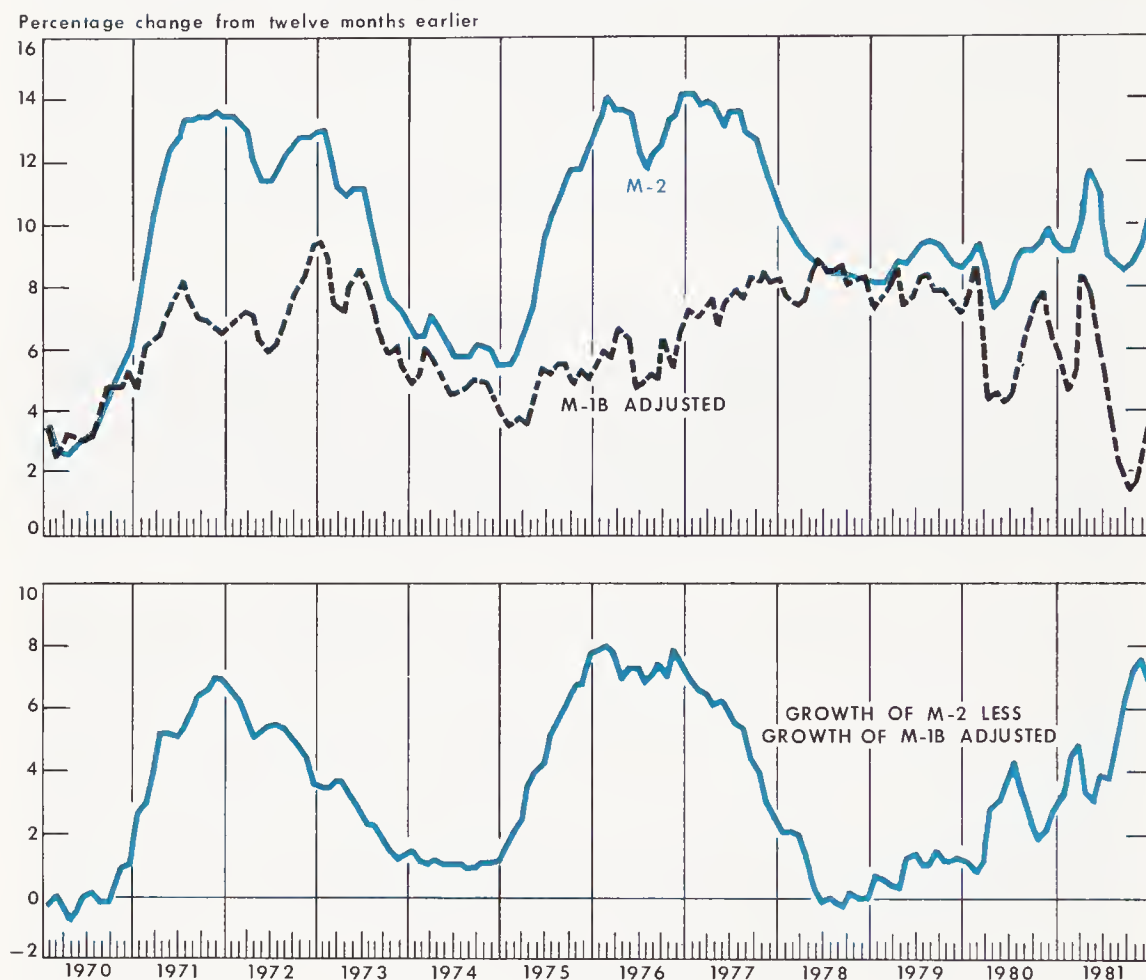
There are several interesting points to be made about these numbers. First, and perhaps most obvious, is the sharply divergent signals the narrow and broad measures seem to convey, taken literally, about the stance of monetary policy in 1981. Thus, the M-1B measure looks quite tight. It represents a sharp slow-down from the growth rate of 1980. In contrast, the growth rates of the broader aggregates in both cases were actually slightly more rapid in 1981 than their already rapid 1980 increases. Thus, they make policy look quite “easy”.

*Developments in 1981 have once again pushed to the fore questions about the implication of financial innovation for our targeting process that have been around for some time.*

Perhaps just as important, we did not anticipate, and almost certainly could not have anticipated, the extent of these divergencies. In terms of the midpoints of our 1981 targets for M-1B and the broader measures, the divergencies allowed for were far smaller than the divergencies that have actually materialized. We did have some reason to believe, and we said so publicly, that the narrow measures were more likely to be around the bottom of their ranges and the broader measures near the tops of theirs. But there really was no way to anticipate the *extent* of the divergencies that actually occurred. There were only one or two earlier episodes in the last fifteen years, when the twelve-month growth rate of M-2 exceeded the comparable growth rate of M-1B by as large an amount as has been the case this year. And these earlier periods when M-2 growth was especially rapid relative to M-1B were periods of *low* interest rates—quite a contrast to most of 1981! In the past, M-2 has grown especially rapidly relative to M-1B during periods when low interest rates were causing a shift of funds back into time and savings accounts and out of open market instruments.

Thus, the very large gap between M-2 and M-1B in 1981 represents an extremely unusual, if not actually unique situation that has complicated the task of setting policy as the year has proceeded. Over most of the year, M-1B seems to have been giving a misleadingly weak signal, even in view of the clear emergence of recession late in the year. M-1B growth has been substantially

**Chart 1. FOR A PERIOD OF HIGH INTEREST RATES, GROWTH IN 1981 OF M-2 WAS UNUSUALLY RAPID RELATIVE TO M-1B GROWTH.**



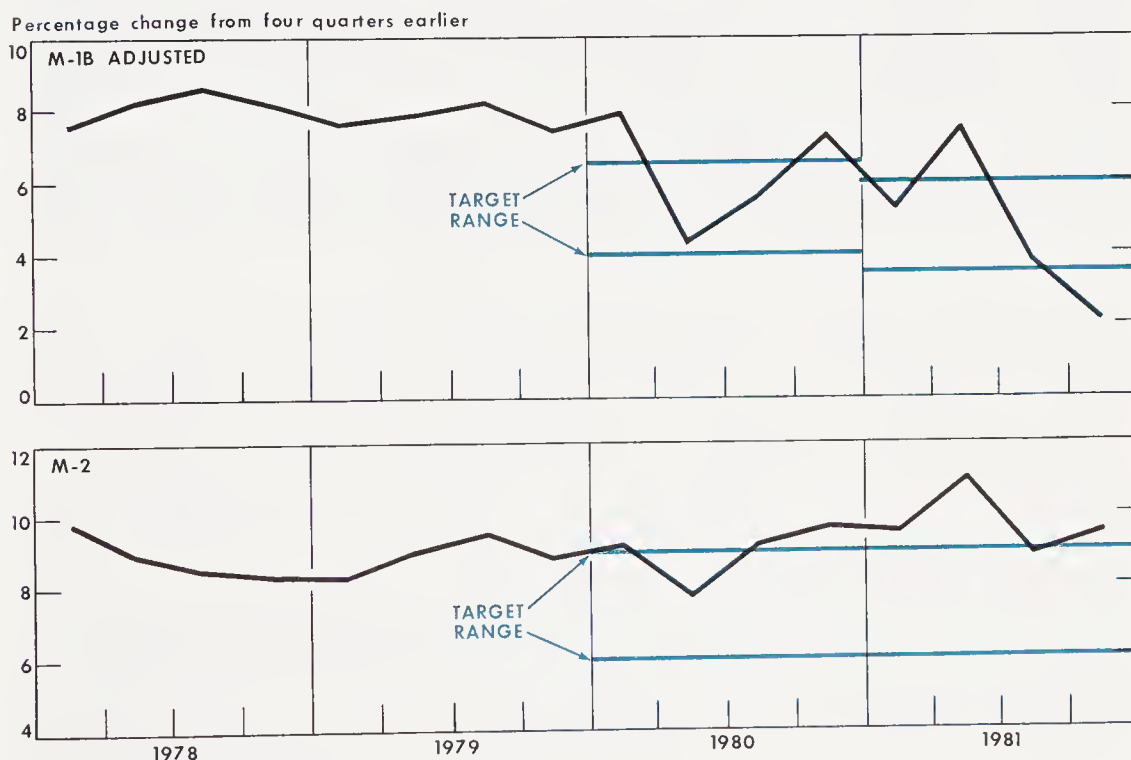
slower than one would expect from past history, given the general state of the economy and the performance of interest rates this year. This should perhaps be not wholly surprising, however, given the rising importance of new instruments that are more or less close substitutes for the items we include in M-1B.

On the other hand, monetary policy cannot reasonably be charged with the easy policy that a literal reading of the broad money measures would suggest. The strength of the broader money measures in 1981 is surely due in good part to the changing character of the instruments included in them. In any case,

my purpose is not to assess just how “easy” or “tight” monetary policy has actually been this year. Instead, my point is that the money stock numbers themselves have not provided clear signals.

The public has, understandably, had some difficulty in assessing the divergent developments in the different measures in relation to our goal of reducing monetary growth in a gradual way, ultimately to noninflationary levels. Yet, numerology aside, I believe that most financial market participants feel, as I do, that we have been true to the spirit of that goal. The challenge, as we come to consider our targets for both narrow and broad measures in 1982, will be to shape them in a way that recognizes the financial innovations under way while continuing to advance our underlying objectives.

**Chart 2. GROWTH OF M-1B SLOWED SHARPLY IN 1981, ENDING THE YEAR SOMEWHAT BELOW ITS TARGET RANGE, WHILE M-2 GROWTH REMAINED QUITE RAPID, ENDING THE YEAR SOMEWHAT ABOVE ITS OWN TARGET RANGE.**



**NEW INSTRUMENTS.** I have suggested that much of our problem this year with the aggregates probably stems from the spreading use of new substitutes for the more traditional instruments included in our money measures. Some of these developments are already quite familiar. The NOW account, for example, has been with us for some years. Its introduction nationwide this year gave us some technical problems in adjusting our narrow money measures for its impact. However, it has presented no fundamentally new difficulty. Like the zero-rate demand deposit, NOW accounts currently pay a regulation-constrained interest rate set well below money market rates and are generally subject to reserve requirements. Of more significance for monetary targeting are the new instruments that pay market-related rates. Some of these, like the corporate overnight RP (repurchase agreement) and the money market mutual fund, have also been with us for some time, but in the case of the money funds their importance has exploded over the past year or two.

*At the end of this process of innovation and deregulation, one could imagine a world in which ultimately all but the smallest accounts pay market-related rates, a world in which depository and perhaps other institutions offer a wide array of instruments with varying mixes of transactions and investment characteristics.*

Some other more recent developments, propelled both by interest rate conditions and advancing technology, may come to have growing significance. These include procedures for, in effect, writing checks on fixed-maturity time deposits by opening a line of credit at the time the funds are deposited. Potentially far more important are some new types of “sweep” accounts, some designed primarily for business depositors, others for individuals. In these arrangements, funds are automatically moved into or out of conventional transactions accounts from investment accounts paying market-related rates. Some of these investment accounts involve bank consumer RPs, while others are nonbank money market mutual funds. These new accounts thus make available for small businesses and consumers an arrangement previously available only to larger depositors in the traditional “wholesale” RP market. Under the new sweep arrangements,

the funds in the “transactions” portion of the account cannot fall below a minimum without triggering a new transfer from the investment component. Thus, the minimum balances in the transactions account would be, in effect, “compensating balances” not really available for making transactions. Still other innovations of recent years, such as the six-month money market CD (certificate of deposit), have no direct implications for transactions measures but are transforming the character of the broader monetary aggregates.

*Whatever the precise details of the new set of arrangements, it is reasonably clear that problems are going to be created for monetary aggregate targeting.*

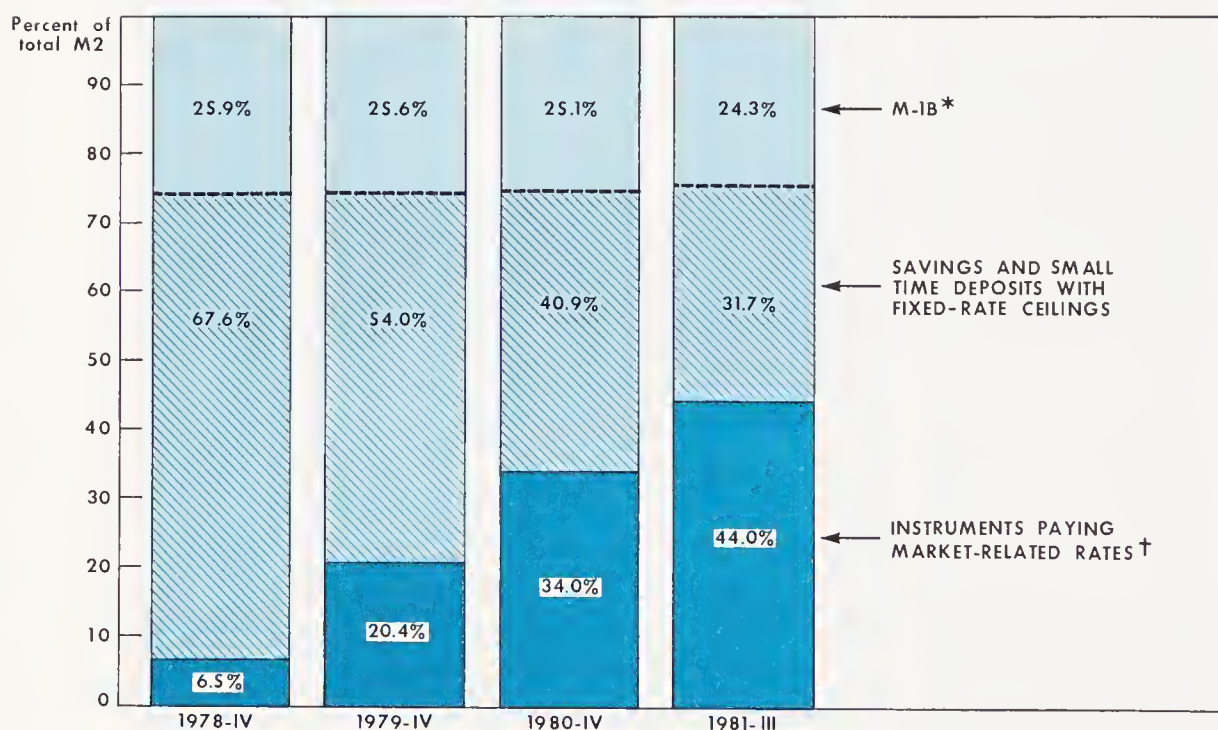
These various innovations have had at least three effects that together help account for the differential behavior of our monetary measures this year. *First*, their introduction and spread appears to be progressively reducing the demand for conventional, fixed-interest rate transactions instruments. The process seemingly operates unevenly over time and is proving hard to predict. *Second*, the overall demand for the broader money measures has probably increased to some extent as individuals and businesses have shifted some funds out of open market instruments and into the new instruments included in the broad money measures. *Third*, the sensitivity of the demand for the broad measures as a whole to movements in open market interest rates is almost certainly declining as the share of instruments paying market-related rates in these broad measures increases. Thus, when market rates rise, for example, rates paid on many instruments included in the broad money measures tend to rise with them, so there is far less tendency to shift out of broad money and into open market instruments than there was in earlier years. This development may well have been the most important factor in explaining how growth of M-2 exceeded growth of M-1B by near-record amounts in a year of high rather than low interest rates.

Innovations of the kind that have produced these various effects will continue to occur, and the importance of the ones already in existence will continue to spread. Thus, we can expect the resulting impacts on the economic character of the monetary aggregates to proceed further as well. It seems entirely possible,

for example, that the money funds will increasingly come to be used as transactions accounts. Further, the increasingly frequent announcement of new sweep accounts suggests that these arrangements could also become of major importance. Plans are apparently going forward for national credit card organizations to offer sweep arrangements between NOW accounts and money market funds for depositors at participating banks. The exact terms and prices at which the service would be available to depositors would be set by the individual bank participants. But the number of banks and the volume of funds involved could ultimately be large.

Further, the law requires the elimination of interest rate ceilings on all types

**Chart 3. THE PROPORTION OF M-2 FUNDS PAYING MARKET-RELATED INTEREST RATES HAS RISEN DRAMATICALLY OVER THE PAST THREE YEARS.**



\* M-IB consists of demand deposits, other checkable deposits, and currency.

† The M-2 components paying a market-related rate of interest are: money market certificates, money market mutual funds, small savers certificates, overnight RPs, and overnight Eurodollars.

of deposits (except the statutory zero ceiling on demand deposits) by 1986. When interest ceilings are raised or removed on transactions instruments included in M-1B, this will of course tend to *increase* the demand for the narrow money measure under given conditions—but again the quantitative impact is uncertain. For one thing, the cost to depository institutions of reserve requirements on transactions accounts might lead them to favor the use of sweep-type arrangements even after all interest rate ceilings on NOW accounts have been removed. In such arrangements, the bulk of the funds could be swept into accounts not subject to reserve requirements.

At the end of this process of innovation and deregulation, one could imagine a world in which ultimately all but the smallest accounts pay market-related rates, a world in which depository and perhaps other institutions offer a wide array of instruments with varying mixes of transactions and investment characteristics. In such a world, the level of transactions services provided by an instrument would be reflected in the costs charged for the service—whether directly or indirectly as a differential from interest rates paid on pure investment-type accounts. But, in any case, most of these funds would receive market-related rates.

**PROBLEMS FOR POLICY.** Whatever the precise details of the new set of arrangements, it is reasonably clear that problems are going to be created for monetary aggregate targeting, both in the transition period now evidently under way and in the new state of things when the process of transition has been completed. First, we can expect that, as the transition proceeds, the use of new substitutes for conventional transactions instruments will spread and our current transactions measures of money will continue to shrink in size relative to the economy. As long as this happens, we will have to allow for such demand reductions in setting and adjusting our annual targets. At some point, to be sure, deregulation of rate ceilings on NOW accounts may provide an offset by *increasing* the demand for these “conventional” measures. But again we will have to make an appropriate allowance.

Second, we will have to allow for more *uncertainty* about the demand for money as these hard-to-predict changes in demand proceed. This may suggest a greater need for midyear corrections in the monetary targets that are announced in February of each year. It might also recommend the use of wider target ranges.

Third, we are going to have to make allowance for the declining sensitivity of the broad money measures to changes in market interest rates as the fraction of these aggregates paying market-related rates increases. This declining rate sensitivity of the broad aggregates has two significant implications. The first, well illustrated by the 1981 experience, is that old rules of thumb for determining the mutual consistency of narrow and broad target ranges under given conditions will require revision. And the need for such revision may introduce a degree of uncertainty in setting the broad aggregate targets comparable to the increasing difficulties of determining appropriate target ranges for the narrow measures.

But perhaps the more interesting question posed by the declining rate sensitivity of the broad money measures involves our ability to control them. I think we may already be nearing the point where the Federal Reserve can influence the growth of these broad measures only indirectly by first influencing the behavior of the economy itself. When the Federal Reserve contracts reserves, for example, it of course has the short-run effect of putting upward pressure on the Federal funds rate and other short-term market interest rates. But, as long as rates paid on many instruments included in the broader aggregates, such as money fund accounts, respond reasonably promptly to changes in open market rates, there will be much less reason for an increase in open market rates to produce shifts out of such instruments and into open market securities. And this consideration, coupled with the absence of reserve requirements on many items included in the broader money measures, means that there may be little or no tendency for these measures to slow. Of course eventually, rises in interest rates will slow aggregate demand, and they will thus ultimately slow the growth of the broad measures via this route. But such a process, in effect, amounts to slowing the economy to slow money growth, a sequence that may call into question the usefulness of interposing monetary aggregate measures as intermediate objectives.

So at the moment I see us as in the middle of a transition phase in which we will have to rely mainly on controlling the narrow money measure as an operational matter, a measure whose relative importance is shrinking. And this will have to be done in an environment in which it may be getting increasingly difficult to predict the precise economic consequences of given target growth rates for either narrow or broad measures. As I suggested, such a situation will require some flexibility in setting long-term targets and in reevaluating them as the year unfolds. The price to be paid for such flexibility could

be some loss in the communications value of the targets since the *reasons* for the adjustments would have to be clearly explained. But the alternative might be to stick to a rigid pattern of annual target reductions of constant size that could prove increasingly unrealistic as the process of financial innovation and deregulation proceeds.

At some point, the process of innovation and deregulation may move us to a new situation in which a more fundamental reevaluation of our use of monetary targets may be necessary. I do not know how far we may be from such a situation, but the time is probably less than a decade and may possibly be substantially less than that. If, for example, the sweep accounts should spread as rapidly as the use of the money funds has in the past couple of years, the need for a basic new look at our procedures could come on with uncomfortable speed.

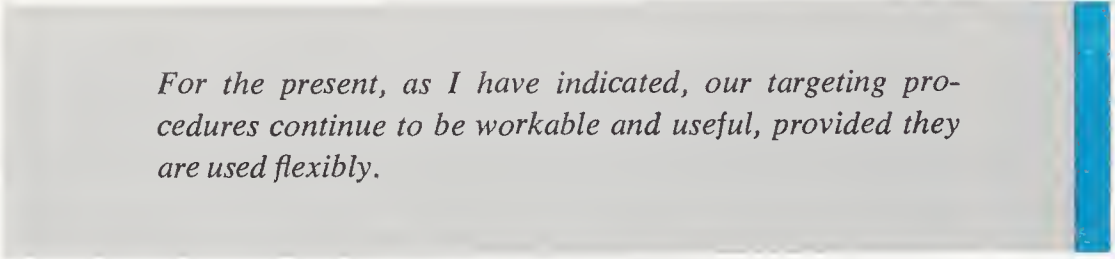
*At some point, the process of innovation and deregulation may move us to a new situation in which a more fundamental reevaluation of our use of monetary targets may be necessary.*

As I already suggested, in this new world the bulk of all transactions balances will be paying market-related rates. Moreover, under present regulations, many, if not most, transactions accounts and their close substitutes would be free from reserve requirements. This would be true of the “investment” portion of sweep accounts, and it would of course also be true, under current law, for *any* account at nondepository institutions. Moreover, under the 1980 Monetary Control Act, reserve requirements on all personal time and savings accounts will be completely eliminated by September 1, 1983. Under these circumstances, it might well be much more difficult to define an economically significant monetary aggregate that would be readily controllable by the Federal Reserve except indirectly via the interest rate effects of open market operations on the economy at large. Thus, all meaningful definitions of money might exhibit the kinds of control problems that the broad definitions are already beginning to show.

One possible means of remedying such a situation would be to develop

legislation defining a “transactions” aggregate very broadly, perhaps to include all instruments payable at “par” within a few business days, and then to impose reserve requirements on such instruments. The reserve requirement would have to be universal across all institutions offering transactions instruments. Such an approach would, in effect, generalize the Federal Reserve Board’s recent proposal to impose reserve requirements on money fund accounts offering transactions services.

While attractive, there are some difficulties with this approach. First, there is a question as to whether even the imposition of reserve requirements would get around the practical control problems posed by the lack of any real sensitivity of the demand for the transactions measure to changes in open market



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rates. Without such sensitivity, open market operations might lead to disturbingly large short-run impacts on interest rates.

A second problem is that whatever definition of a transactions instrument were adopted, the existence of a reserve requirement “tax” would provide a continuing incentive for the market to invent new substitutes just outside the definition. As a result, we could find ourselves inducing yet another wave of innovations. In principle, at least, this problem could be solved by paying market-related interest rates on required reserves to remove the competitive cost disadvantage of reserve requirements.

The potential difficulties of framing legislation to impose uniform reserve requirements on a newly defined transactions instrument should not be minimized. Universal requirements to hold noninterest-bearing reserves would of course be opposed by institutions offering transactions instruments that are currently free of such requirements. And if the reserve requirement “tax” problem were avoided by paying interest on reserves, there would be some indirect cost to the United States Treasury.

**ALTERNATIVE APPROACHES.** These difficulties seem formidable enough to raise the question of possible alternative approaches. The possibilities would seem to include the substitution of other financial measures for the money concepts as intermediate targets and perhaps, at the extreme, even doing away with financial aggregate targeting altogether.

Among alternative financial aggregates, total bank reserves or the monetary base might appear to be obvious possibilities. The monetary base is reasonably controllable at present and should continue to be so in the prospective future environment. One question raised by the monetary base and by reserves, however, is whether they are, or will be, sufficiently closely related to movements in the economy at large to be useful intermediate targets for policy. The evidence I have seen does not seem particularly encouraging in this respect. One problem for the monetary base is the extent to which its behavior is dominated by movements in currency in circulation. Coin and currency now account for nearly three fourths of the base. Further, to the extent that reservable deposits prove to be unresponsive to movements in open market interest rates, the demand for reserves and the base would be similarly unresponsive. As a result, efforts to control the base might require unacceptably sharp movements in market rates. Given these various problems, perhaps the only value a target framed in terms of the base or total reserves might have would be to perform some communications function and to provide a rough check on both excessively "easy" and excessively "tight" monetary postures.

Another possibility would be to replace the money targets with a measure of credit, perhaps bank credit, credit extended by all depository institutions, or some still broader credit measure. But, given liability management by banks and other financial institutions, and given variable rate lending and the absence of reserve requirements on many major funding sources, the question again arises as to whether bank credit can be readily controlled. This same question arises even more insistently in the case of still broader credit aggregates. With some of these credit measures there are also significant lags in data availability.

Another approach to the problems posed by financial innovation would of course simply be to downgrade the role of *all* actual and potential financial aggregates as intermediate targets. Conceivably at least, the Open Market Committee could turn to articulating its objectives more directly in terms of growth for nominal GNP. Accompanying such an approach could perhaps be some broadly framed constraints on real interest rates and a renewed emphasis on nominal interest rates as short-term operating objectives. The problems with this ap-

proach, however, are also reasonably clear. We would lose the potential virtues of aggregate targeting as a means of articulating a long-run anti-inflation strategy. And we would lose the virtues of the post-October 1979 de-emphasis on interest rates, a process which has served to free the Federal Reserve from a tendency under interest rate targeting to move the targets too slowly.

Fortunately, we have some time to decide on appropriate ways of coping with the longer run implications of the current wave of innovations. My only

*And going beyond their impact on aggregate targeting, financial innovation and the accompanying process of deregulation is clearly changing the way in which monetary policy works.*

aim here has been to sketch possibilities. Clearly the process of innovation does still have some considerable distance to go. It may proceed at a slower or faster pace depending in part on the behavior of the economy. For example, a substantial and long-lasting reduction of interest rates would very likely slow significantly the spread of these innovations—though I do not think it would undo the changes that have already taken place. For the present, as I have indicated, our targeting procedures continue to be workable and useful, provided they are used flexibly.

In the meanwhile, there is a question as to whether any legislation would be desirable to deal with the effects of innovation on monetary policy. The Federal Reserve Board's proposal to impose reserve requirements on checkable money fund accounts can be accepted on competitive equity grounds alone. But to be effective from a monetary targeting point of view, reserve requirements would probably also have to be extended to the sweep accounts and perhaps to other instruments. Imposition of reserve requirements on sweep accounts could prove to be a complicated and contentious matter. In any case, incrementalism in regulation often seems to result in a chase in which the markets seek to keep a step ahead of the regulators. This was true in the 1960s when the regulators had to apply Regulations D and Q to new types of instruments successively in an earlier effort to protect monetary policy from the eroding effects of financial innovation.

Perhaps for the present, the clearest point that emerges is simply the need for us to be aware of the problems that innovations are creating for the coherence of the monetary targeting approach. The issues raised by this process are, I submit, of substantially more fundamental importance than the relatively technical matters that have been receiving much attention recently, such as contemporaneous reserve accounting and the design of our approach to adjustment borrowing at the discount window. Some of these questions are undoubtedly of real interest. But they seem relatively minor in a year when different money measures, each perhaps equally plausible as targets *a priori*, differ in what they are telling us about even the direction of policy. Clearly the forces of financial innovation behind this development and their implications for the future deserve a major share of our attention.

And going beyond their impact on aggregate targeting, financial innovation and the accompanying process of deregulation is clearly changing the way in which monetary policy works. Increasingly we live in a world of universally flexible interest rates and highly mobile sources of funds. This is a world in which policy impacts the economy primarily through the effects of credit cost on borrowers and spenders and decreasingly through availability effects created by legal and institutional impediments to interest rate movements. It is a world in which interest rates must move further to achieve significant impacts and a world in which rates are more variable. It is also a world in which, for the present at least, financial fragility has seemingly increased because institutional adaptations to the floating rate environment remain imperfect.

My own instinct is that there is no single approach to monetary policy that is best for all times and places. As conditions change, the approach will probably have to change, too. The world that will come into existence after the current wave of innovation and deregulation has spent its force is still, in many respects, an unknown. For just that reason its prospects are bound to create a certain amount of anxiety. In adapting to this changing world, policymakers will continue to benefit importantly from the results of economic research on these matters. Clearly there are many important issues raised for monetary policy by innovation and deregulation for which we as yet have no final answers.

## **Economic Overview—1981**

Economic developments during 1981 underscored how difficult, prolonged, and at times painful the period of adjustment would be to the legacy of high inflation and oil price shocks that has been plaguing the world economy in recent years.

No major industrial country achieved what would ordinarily be called satisfactory economic performance during the year. Business activity was bracketed between weak or uneven growth and outright recession, and the consequences for labor markets and capital formation were uniformly adverse. There were large increases in unemployment in most industrial nations—to postwar records in several European countries. Domestic investment spending was disappointingly low, even in Japan where the overall rise in GNP was much greater than in other industrial countries. And government financial deficits remained large virtually everywhere. To be sure, a measure of progress was made against inflation. But, while some wage moderation occurred, the main impetus for lower inflation came from falling world commodities prices (when expressed in dollars, that is), depressed because of the generalized weakness in world demand. By the year-end, inflation rates for consumer prices were noticeably lower in only a few industrial countries—including the United States where the rate dropped below double digits; in a number of European countries, whose currencies had depreciated heavily against the dollar, they were actually somewhat higher.

Probably the most positive development in 1981 was the continued progress toward meaningful energy conservation. In the United States, the volume of oil consumed dropped by another 5 percent or so during 1981, following a decline of 8 percent in 1980, and oil consumption continued to fall in the other industrial countries. Part of this fall in consumption reflected the weak economic growth pattern. But a substantial portion was directly attributable to price-induced conservation. This significant cutback in consumption left the world oil market considerably softer than it has been for several years. And it meant that the members of the Organization of Petroleum Exporting Countries (OPEC) cartel could just about maintain dollar oil prices, but only by significantly reducing their output. By the end of 1981, OPEC was producing just over 20 million barrels of oil a day, down nearly 20 percent from the year before and about 9 million barrels a day less than they were producing at the beginning of 1980. The results were a drop in OPEC dollar revenues and, with

their imports of goods and services from the rest of the world rising rapidly, a large reduction of their current account surplus—to perhaps \$60 billion, from upward of \$100 billion in 1980.

The counterpart of this sizable reduction was mainly an improvement in the current account position of the industrial countries. It appears that for the third year in a row the United States recorded a small surplus. Elsewhere, bolstered by a strong expansion of exports, the Japanese current account swung about \$15 billion from a large deficit in 1980 to a surplus of around \$5 billion in 1981. The German deficit was cut in half during the year, and there were smaller improvements for a number of other industrial countries.

Yet the problem of large imbalances in global payments remained serious. While circumstances differed among the less developed countries (LDCs), their overall current account situation worsened. The aggregate deficit of the LDCs, already in the neighborhood of \$60 billion in 1980, now appears to have gone up by about \$10 billion last year. So further heavy financing from both private and official sources has been required to avert a major contraction of LDC imports and domestic economic growth. Meanwhile, the dramatic political events in Poland, accompanied by severe internal economic disarray and acute debt-servicing interruptions, highlighted the very real risks involved in international lending.

**U.S. ECONOMY IN 1981.** The unusually short, weak recovery from the brief but sharp economic contraction in 1980 began to stall out in the early months of 1981. With interest rates having moved up substantially during the recovery and long-term rates continuing to rise in 1981, interest-sensitive components of spending, especially housing, weakened substantially, and domestic car sales also fell off. But there was enough momentum left in other sectors to offset these declines and keep real GNP roughly steady through the summer.

The business climate abruptly soured later in the year, however, and the economy slipped rapidly into recession as the weakness in housing and cars fanned out to envelop other parts of the economy. There was a significant contraction in consumption and business investment spending, a plunge in new factory orders, and a sharp reduction of industrial output as firms sought to reduce inventory levels. There was also a continued slackening in state and local government expenditures amid growing concerns about their future financial positions, as well as a reduction of the volume of export sales. Reflect-

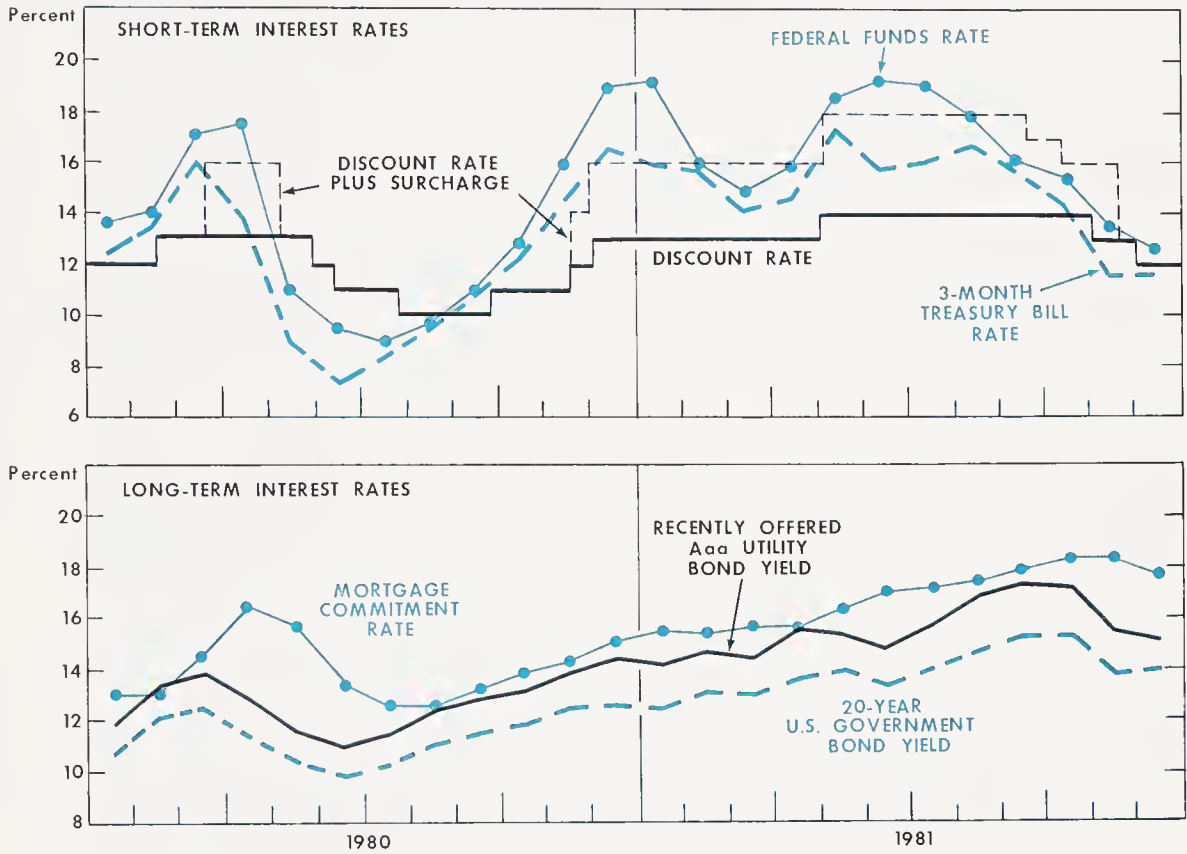
ing the fall in output, the unemployment rate rose, while total employment, the number of hours worked, and capacity utilization rates declined.

No single factor precipitated the recession, but the main underlying elements are clear. At the root of it was the high rate of inflation, coming down only irregularly and grudgingly over the course of the year, coupled with stubbornly high inflationary expectations among investors. As these inflationary forces clashed with a basically restrictive, anti-inflationary monetary policy, the end product was a powerful restraint on total spending in the economy. When for various reasons spending plans were abruptly postponed late in the year, the initial (and typical) response of businesses was often to slash output rather than to bring down prices fast enough to sustain previous sales levels. This output adjustment was accentuated by relatively high interest rates, but it continued even as interest rates dropped sharply in line with a recession-induced slackening in credit demands. The lesson, which has been repeated twice in two years, is inescapable. In an environment of high inflation, the economy is vulnerable to downward pressures and is unlikely to maintain steady expansion until those inflationary forces are permanently checked. Some success has been achieved in moving inflation lower, but not enough to remove this basic vulnerability.

**DOMESTIC FINANCIAL MARKETS.** Interest rates continued to vary over a broad range in 1981 on both short- and long-term financial instruments. But most businesses, commercial banks, and other financial institutions seemed able to cope with what were obviously difficult markets. While a few pockets of severe strain did emerge, there was no imminent danger of widespread failures that could do lasting damage to the financial structure. And in one case, the money market funds, 1981 brought thorough-going prosperity.

The corporate bond market was whipsawed in 1981. The underlying problem was that corporate borrowers had amassed a sizable overhang of short-term debt on their balance sheets, and the markets knew that a large number of prime companies were eager to take advantage of any improvement in market conditions to switch from short-term to long-term borrowings. This weight of potential new issues generated a sense that any rate decline could easily be cut short, while other factors could push rates higher at any point. For one thing, there was a continuing sensitivity both to the published money supply statistics and to the apparent ease or tautness of the money markets, reflecting

**Chart 4. INTEREST RATES CONTINUED TO VARY OVER A BROAD RANGE IN 1981.**



the interplay of bank reserve needs relative to availability as the Federal Reserve sought to achieve its monetary objectives. In an uncertain interest rate environment, investors were prepared to stay in high-yielding short-term assets, waiting for the right moment to go long.

But beyond that, the bond market was buffeted by shifting assessments of the economic outlook, most particularly the outlook for the size of the Federal Government budget deficit following passage of the Administration's program of domestic spending and tax cuts. Regardless of how inflationary market participants felt the deficit would or would not be over the longer term (and opinions differed on that), there was a pervasive feeling that large Treasury

borrowing needs, competing for a limited amount of funds available for investment, would cause higher long-term interest rates. This prevailing view made investors wary and dealers extremely cautious about buying or holding bonds. In turn, many corporations were not eager to issue bonds at what might have turned out to be the peak of the market.

While the bond market improved for a few weeks in November and large amounts of new corporate issues were readily sold, one sector—tax-exempt municipals—remained exceptionally weak. Because of the tax-exempt feature, municipals typically have sold at a premium in the market, with yields substantially below those on comparable taxable issues. By late 1981, however, that yield differential had greatly narrowed. The poor performance of municipal bonds reflected various adverse factors. These included new forms of tax-free investments authorized in the Economic Recovery and Tax Act of 1981, altered investment preferences by banks and casualty insurance companies which traditionally have been large holders of municipals, and a growing concern about the financial strength of state and local governments.

The financial sector that experienced the most acute strains in 1981 was the thrift industry. Savings and loan associations and mutual savings banks have been unusually vulnerable to periods of high interest rates. Their assets are heavily in the form of fixed-rate mortgages or securities, many at rates far below prevailing market rates, while their deposits are increasingly in instruments that pay market rates (about two thirds of their deposits at year-end 1981). Last year, therefore, most thrift institutions lost money and suffered a decline in net worth. Exacerbating this adverse balance-sheet position, many thrifts have lost sizable amounts of deposits to fast-growing money market funds offering check-writing convenience and market interest rates for relatively small-sized investments.

In a few cases, where earnings problems were most severe, the relevant Federal regulatory agencies orchestrated and assisted in mergers with financially stronger thrift institutions. Several mergers took innovative forms, including interstate combinations. To help the thrift industry in general, the Congress authorized a new tax-free all savers certificate as of October, and almost \$25 billion was placed in these deposits at thrift institutions by the year-end.

Despite all the problems, many thrifts continued to be willing to make mortgages. But increasingly they sought to shift from conventional fixed-rate instruments to various kinds of adjustable rate mortgages. At the same time, the dwindling number of potential home buyers were shying away from paying the high rates on long-term, fixed-rate mortgages. And many were willing to turn

(albeit reluctantly) to nontraditional financing techniques, including adjustable rate mortgages and mortgages provided by the seller of the house.

The fastest growing part of the financial sector was the money market funds. They more than doubled during 1981 and by the end of the year were handling over \$180 billion of investments. To put this in perspective, they already are a fourth as large as the whole thrift industry. And the money market fund component of the broadly defined money supply (M-2) is now about 10 percent of the total. With retail repurchase agreements and various types of "sweep" accounts also taking hold during the year, the pace of financial innovation clearly accelerated in 1981.

**FOREIGN EXCHANGE AND INTERNATIONAL FINANCIAL MARKETS.** The dollar came into 1981 on a strong upward trend and continued to strengthen against all the other major currencies through midsummer. For some time, the primary impetus had come from relative interest rate developments. Yields on dollar assets were persistently higher than yields on comparable assets in other currencies, although interest rate differentials varied widely. But the dollar was sensitive to other factors as well. Thus, an improving outlook for U.S. inflation compared with other countries, reasonably good U.S. current account performance, and an initially favorable market attitude toward the Reagan administration's economic program helped sustain demand for dollars. By August, the dollar had reached five-year highs against the German mark and other key European currencies. It slipped back during subsequent months, as U.S. interest rates declined relative to rates elsewhere, the current account positions of other industrial countries improved, and the possible inflationary impact of higher U.S. budget deficits came under market scrutiny. But the dollar still ended the year up by more than 10 percent on average.

Within Europe, the members of the European Monetary System sought to keep their currencies within agreed limits, while floating more or less as a group against the dollar. At times, when there were market pressures on the currency limits, fairly sizable official intervention was needed to maintain the arrangement. And two adjustments of the limits were made, one in March involving the Italian lira and a general realignment in October involving all seven currencies. Meanwhile, foreign central banks also intervened in large amounts to moderate movements in currency rates against the dollar. The U.S. authorities were prepared to intervene in special circumstances, but no opera-

tions were in fact conducted after March.

In the international capital markets, there continued to be huge flows of funds during 1981. Although the OPEC investable surplus fell considerably, it was still large. And there were substantial financing needs by a number of industrial countries, as well as the developing ones. U.S. banks played a relatively bigger role in the markets, stepping up the growth of new international lending, while banks from other major industrial countries (apart from Japan) appeared to have scaled back their lending expansion somewhat. Arab banks took up some of this slack as they became more visible internationally last year.

In December, U.S. banking institutions, along with affiliates of foreign banks operating in the United States took advantage of regulatory and tax changes to open international banking facilities (IBFs). The facilities permit business to be done with non-U.S. residents out of U.S. banking offices in much the same way as in the Eurocurrency markets—that is, without interest rate ceilings or reserve requirements. By the year-end, about 250 IBFs had been established, and banks were planning to shift a considerable portion of assets and liabilities now booked in offshore locations to their IBFs. Over time, the new facilities have the potential to enhance the relative position of New York and other cities in this country as international financial centers.

## **The Pricing of Federal Reserve Services and the Payments Mechanism**

The Monetary Control Act of 1980 (MCA) required the Federal Reserve to price its payment services explicitly and make these services available to all depository institutions. Specifically, pricing is to provide for full recovery of costs over the long run plus a mark-up to allow for the private sector's cost of capital. The Federal Reserve System's payment services range from check clearing and funds and securities transfer to noncash collection and cash transportation. Prior to 1981, these services were provided free and were available only to member banks. The pricing of Federal Reserve services is expected to offset revenue losses to the Treasury resulting from reduced reserve requirements for member banks.

In response to the pricing of Federal Reserve services, banks have begun to evaluate their service needs against alternative sources and prices. Some correspondent and respondent banks have sought to limit the cost impact of using Federal Reserve check services by turning to direct local clearing arrangements, which has resulted in volume losses for the System. In New York, the volume of checks processed has fallen from an average of almost 9 million checks per day to about 8 million. In some product lines, such as funds transfer, volumes have increased but, on balance, overall service volume throughout the System has declined.

Despite volume losses, efficiency in most System services appears to be at a competitive level. Well before the MCA, the Federal Reserve had emphasized both cost containment and productivity. As one example, the New York Federal Reserve Bank installed the most modern check-processing equipment available and implemented a modular team-processing approach. Because of initiatives such as these, productivity nearly doubled in the past four years and unit costs declined slightly. Ultimately, the success of the System in providing competitive payment services will be determined by the market and the System's ability to respond to its changing needs.

In the past, the Federal Reserve helped to spur innovation and promote advances in the payments mechanism. Its nationwide check-clearing system set the stage for elimination of nonpar checking, standardization of check formats, and magnetic ink encoding of checks.

The Federal Reserve is also playing a major role in shifting more and more

of the payments system to an electronics base. The System has worked with commercial banks to develop a nationwide automated clearing house (ACH) network, which makes possible electronic crediting and debiting of bank accounts in all parts of the country.

Another part of the process of furthering electronic payments will be the placement of the Sigma telecommunications network, which serves this Bank's funds and securities transfer operations. When completed, in a year or so, the new system will provide improved service and permit broader on-line access for all depository institutions. Today, the Federal Reserve's funds transfer network annually handles about 50 million wire transfers and some 280 million automated clearing house entries, with a total value in excess of \$80 trillion.

Because of the Federal Reserve's important role in effecting interbank payments, the System has been in a position to influence international payment practices. Working with the domestic and foreign banking communities, the Federal Reserve was able to accommodate the move by CHIPS (the Clearing House Interbank Payments System) to same-day settlement in October 1981. Since CHIPS is responsible for the bulk of the world's international interbank dollar payments, the change is significant. Previously, transactions were settled on a next-day basis, which increased the attendant settlement risk.

One of the MCA's requirements is that the Federal Reserve Banks charge for float if it cannot be eliminated. Through operational and managerial improvements, average daily float has been reduced from \$6.1 billion over the last three months of 1979 to \$3.4 billion in the final quarter of 1981. The Federal Reserve intends to reduce float significantly further during 1982.

The precise nature of the Federal Reserve's involvement in the payments mechanism of the future cannot be readily predicted. It is likely that the System will discontinue some services which are provided efficiently elsewhere. But clearly the System will not use its prices or its market power to dominate service lines in pursuit of revenue. At the same time, the System cannot use revenue as the sole determinant of its market presence in every service line if it is to assure the availability of nationwide payment services. Continuing adjustments will be required as the System seeks to meet the test of the market while fulfilling its responsibilities as the central bank in promoting a more efficient and effective payments mechanism.

## Financial Statements

### STATEMENT OF EARNINGS AND EXPENSES FOR THE CALENDAR YEARS 1981 AND 1980 (In dollars)

	1981	1980
Total current earnings .....	4,411,378,303	3,335,892,900
Net expenses .....	178,868,816	163,597,671
Current net earnings	4,232,509,487	3,172,295,229
Additions to current net earnings:		
Profit on foreign exchange (net) .....	—	24,318,030
All other .....	76,354,576*	209,126
Total additions	76,354,576	24,527,156
Deductions from current net earnings:		
Loss on foreign exchange (net) .....	78,027,922	—
Loss on sales of United States Government securities and Federal agency obligations (net) .....	34,318,309	50,330,254
All other .....	7,362,326	1,315,286
Total deductions	119,708,557	51,645,540
Net deductions .....	43,353,981	27,118,384
Assessment for the Board of Governors .....	16,066,500	15,742,400
<b>Net earnings available for distribution</b>	<b>4,173,089,006</b>	<b>3,129,434,445</b>
Distribution of net earnings:		
Dividends paid .....	18,797,197	17,866,143
Transferred to surplus .....	12,676,500	16,122,050
Payments to United States Treasury (interest on Federal Reserve notes) .....	4,141,615,309	3,095,446,252
<b>Net earnings distributed</b>	<b>4,173,089,006</b>	<b>3,129,434,445</b>
<b>SURPLUS ACCOUNT</b>		
Surplus—beginning of year .....	306,006,800	289,884,750
Transferred from net earnings .....	12,676,500	16,122,050
<b>Surplus—end of year</b>	<b>318,683,300</b>	<b>306,006,800</b>

★ Includes \$75,731,032 of contingent expenses and interest received from the Federal Deposit Insurance Corporation in connection with assumed indebtedness of Franklin National Bank.

# STATEMENT OF CONDITION

In dollars

<b>Assets</b>	<b>DEC. 31, 1981</b>	<b>DEC. 31, 1980</b>
Gold certificate account .....	3,160,256,297	3,012,103,748
Special Drawing Rights certificate account .....	951,000,000	665,000,000
Coin .....	18,029,133	23,700,869
<b>Total</b>	<b>4,129,285,430</b>	<b>3,700,804,617</b>
Advances .....	559,300,000	663,470,000
Acceptances held under repurchase agreements .....	194,755,208	776,489,237
United States Government securities:		
Bought outright* .....	37,188,008,336	31,009,393,835
Held under repurchase agreements .....	3,216,090,000	2,029,250,000
Federal agency obligations:		
Bought outright .....	2,656,642,982	2,271,605,538
Held under repurchase agreements .....	268,910,000	525,050,000
<b>Total loans and securities</b>	<b>44,083,706,526</b>	<b>37,275,258,610</b>
Other assets:		
Cash items in process of collection .....	705,454,435	2,350,527,303
Bank premises .....	22,742,263	19,765,150
Due from Federal Deposit Insurance Corporation for indebtedness assumed .....	428,000,000	—
All other† .....	2,253,678,634	2,126,696,299
<b>Total other assets</b>	<b>3,409,875,332</b>	<b>4,496,988,752</b>
Interdistrict settlement account .....	656,060,339	2,859,073,335
<b>Total Assets</b>	<b>52,278,927,627</b>	<b>48,332,125,314</b>

\* Includes securities loaned—fully secured ..... 953,835,000

387,395,000

† Includes assets denominated in foreign currencies revalued monthly at market rates.

## STATEMENT OF CONDITION

In dollars

<b>Liabilities</b>	<b>DEC. 31, 1981</b>	<b>DEC. 31, 1980</b>
Federal Reserve notes (net) .....	<u>39,632,632,296</u>	<u>35,601,390,747</u>
Reserves and other deposits:		
Depository institutions .....	5,075,029,515	6,521,343,106
United States Treasury—general account .....	4,300,773,123	3,062,266,692
Foreign—official accounts .....	266,904,089	145,508,759
Other .....	<u>540,482,761</u>	<u>435,619,614</u>
Total deposits	10,183,189,488	10,164,738,171
Other liabilities:		
Deferred availability cash items .....	949,428,750	1,384,300,095
All other* .....	<u>876,310,493</u>	<u>569,682,701</u>
Total other liabilities	<u>1,825,739,243</u>	<u>1,953,982,796</u>
<b>Total Liabilities</b>	<b><u>51,641,561,027</u></b>	<b><u>47,720,111,714</u></b>
<b>Capital Accounts</b>		
Capital paid in .....	318,683,300	306,006,800
Surplus .....	<u>318,683,300</u>	<u>306,006,800</u>
<b>Total Capital Accounts</b>	<b><u>637,366,600</u></b>	<b><u>612,013,600</u></b>
<b>Total Liabilities and Capital Accounts</b>	<b><u>52,278,927,627</u></b>	<b><u>48,332,125,314</u></b>

★ Includes exchange translation account balances reflecting the monthly revaluation of outstanding foreign exchange commitments.

## Changes in Directors and Senior Officers

**CHANGES IN DIRECTORS.** In November 1981, the Board of Governors of the Federal Reserve System redesignated Robert H. Knight as *Chairman* of the board of directors and *Federal Reserve Agent* for the year 1982. Mr. Knight, Senior Partner of the New York law firm of Shearman & Sterling, has been serving as a Class C director since February 1976 and as *Chairman* and *Federal Reserve Agent* since January 1978; he also served as *Deputy Chairman* in 1976 and 1977. Also in November, the Board of Governors reappointed Boris Yavitz as *Deputy Chairman* for the year 1982. Dr. Yavitz, Dean of the Graduate School of Business at Columbia University, has been serving as a Class C director since June 1977 and as *Deputy Chairman* since January 1978. At the same time, the Board of Governors reappointed Gertrude G. Michelson a Class C director of the Bank for the three-year term ending December 31, 1984. Mrs. Michelson, a Senior Vice President of R.H. Macy & Co., Inc., New York, N.Y., has been serving as a Class C director since February 1978.

In December 1981, member banks in Group 3 reelected Edward L. Hennessy, Jr., a Class B director for the three-year term ending December 31, 1984. Mr. Hennessy, Chairman of the Board of Allied Corporation, Morristown, N.J., has served as a Class B director since March 18, 1980.

In January 1982, member banks in Group 3 elected Robert A. Rough a Class A director for the three-year term ending December 31, 1984. Mr. Rough, President of The National Bank of Sussex County, Branchville, N.J., succeeded James Whelden, President of Ballston Spa National Bank, Ballston Spa, N.Y., who had served as a Class A director from April 19, 1978 through December 31, 1981.

*Buffalo Branch.* In October 1981, the board of directors of this Bank redesignated Frederick D. Berkeley as *Chairman* of the Branch board for the year 1982. Mr. Berkeley, Chairman of the Board and President of Graham Manufacturing Co., Inc., Batavia, N.Y., has been a director of the Branch since February 1977 and has been serving as *Chairman* of the Branch board since January 1979. At the same time, the Bank's board appointed Edward W. Duffy a director of the Buffalo Branch for a three-year term ending December 31, 1984. Mr. Duffy, Chairman of the Board of Marine Midland Bank, N.A., Buffalo, N.Y., succeeded Robert J. Donough, President of Liberty National Bank and Trust Company, Buffalo, N.Y., who had been a director of

the Branch since August 1978. In November 1981, the Board of Governors of the Federal Reserve System reappointed George L. Wessel a director of the Buffalo Branch for a three-year term ending December 31, 1984. Mr. Wessel, President of the Buffalo AFL-CIO Council, Buffalo, N.Y., has been a director of the Branch since January 1979.

**CHANGES IN SENIOR OFFICERS.** The following changes in official staff at the level of Vice President and above have occurred since the publication of the previous *Annual Report*:

Geri M. Riegger, Vice President, was appointed Vice President and Automation Adviser, effective March 2, 1981 and assigned supervisory responsibility for the Security and Control Staff.

Israel Sendrovic, formerly Assistant Vice President, was appointed Vice President, effective March 20, 1981, and assigned as the officer in charge of the Systems Development Function.

Alan R. Holmes, Senior Policy Adviser, retired effective August 1, 1981. Mr. Holmes joined the Bank's staff in 1948 and became an officer in 1958. From February 1975 to August 1979, Mr. Holmes served as Executive Vice President in charge of the Foreign and Open Market Operations Functions and as Manager of the System Open Market Account.

Scott E. Pardee, Senior Vice President, resigned from the Bank effective August 31, 1981. In that connection, the Federal Open Market Committee terminated Mr. Pardee's designation as Manager for Foreign Operations of the System Open Market Account effective August 7, 1981. Mr. Pardee joined the Bank's staff in 1962 and became an officer in 1967.

Sam Y. Cross, Senior Vice President, was assigned responsibility for the newly established Foreign Group, consisting of the Foreign Exchange Function and the Foreign Relations Function, effective August 7, 1981. Effective the same date, the Federal Open Market Committee designated Mr. Cross Manager for Foreign Operations of the System Open Market Account.

Effective January 1, 1982:

Marcelle V. Arak, formerly Assistant Vice President, was appointed Vice President and assigned to the Research and Statistics Function.

Jeffrey R. Shafer, formerly Assistant Vice President, was appointed Vice President and assigned to the Research and Statistics Function.

Stephen G. Thieke, formerly Assistant Vice President, was appointed Vice President. He has been assigned to the Bank Supervision Function.

Effective January 16, 1982, Neal M. Soss, Vice President, formerly assigned to the Bank Supervision Function, was granted a leave of absence to permit him to serve as Special Assistant to Chairman Volcker of the Board of Governors of the Federal Reserve System.

## Directors of the Federal Reserve Bank of New York

### DIRECTORS

	<i>Term expires Dec. 31</i>	<i>Class</i>	<i>Group</i>
GORDON T. WALLIS ..... Chairman of the Board, Irving Trust Company, New York, N.Y.	1982	A	1
PETER D. KIERNAN ..... Chairman and President, United Bank Corporation, Albany, N.Y.	1983	A	2
ROBERT A. ROUGH ..... President, The National Bank of Sussex County, Branchville, N.J.	1984	A	3
WILLIAM S. COOK ..... President, Union Pacific Corporation, New York, N.Y.	1982	B	1
JOHN R. OPEL ..... President and Chief Executive Officer, International Business Machines Corporation, Armonk, N.Y.	1983	B	2
EDWARD L. HENNESSY, JR. .... Chairman of the Board, Allied Corporation, Morristown, N.J.	1984	B	3
ROBERT H. KNIGHT, <i>Chairman and Federal Reserve Agent</i> ..... Senior Partner, Shearman & Sterling, Attorneys, New York, N.Y.	1983	C	
BORIS YAVITZ, <i>Deputy Chairman</i> ..... Dean, Graduate School of Business, Columbia University, New York, N.Y.	1982	C	
GERTRUDE G. MICHELSON ..... Senior Vice President, R.H. Macy & Co., Inc., New York, N.Y.	1984	C	

### DIRECTORS—BUFFALO BRANCH

FREDERICK D. BERKELEY, <i>Chairman</i> ..... Chairman of the Board and President, Graham Manufacturing Co., Inc., Batavia, N.Y.	1982
M. JANE DICKMAN ..... Partner, Touche Ross & Co., Buffalo, N.Y.	1982
ARTHUR M. RICHARDSON ..... President, Security Trust Company, Rochester, N.Y.	1982
JOHN ROLLINS BURWELL ..... President, Rollins Container Corp., Rochester, N.Y.	1983
CARL F. ULMER ..... President, The Evans National Bank of Angola, Angola, N.Y.	1983
EDWARD W. DUFFY ..... Chairman of the Board, Marine Midland Bank, N.A., Buffalo, N.Y.	1984
GEORGE L. WESSEL ..... President, Buffalo AFL-CIO Council, Buffalo, N.Y.	1984

### MEMBER OF FEDERAL ADVISORY COUNCIL—1982

DONALD C. PLATTEN ..... Chairman of the Board, Chemical Bank, New York, N.Y.	1982
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## Officers of the Federal Reserve Bank of New York

ANTHONY M. SOLOMON, *President*

THOMAS M. TIMLEN, *First Vice President*

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SAM Y. CROSS, *Senior Vice President*  
Foreign Group

PETER FOUSEK, *Senior Vice President*  
and *Director of Research*  
Research and Statistics

RONALD B. GRAY, *Senior Vice President*  
Bank Supervision

PAUL B. HENDERSON, JR., *Senior Vice President*  
Operations Group

JAMES H. OLTMAN, *General Counsel*

THOMAS C. SLOANE, *Senior Vice President*  
and *Senior Adviser*  
Bank Services; Management Planning Group

PETER D. STERNLIGHT, *Senior Vice President*  
Open Market Operations

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### AUDIT

JOHN E. FLANAGAN, *General Auditor*  
LEON R. HOLMES, *Assistant General Auditor*  
WILLIAM M. SCHULTZ, *Assistant General Auditor*  
ROBERT J. AMBROSE, *Manager,*  
*Auditing Department*  
LORETTA G. ANSBRO, *Manager,*  
*Audit Analysis Department*

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### ADMINISTRATIVE SERVICES GROUP

HENRY S. FUJARSKI, *Vice President*

### ACCOUNTING

JOHN M. EIGHMY, *Assistant Vice President*  
DONALD R. ANDERSON, *Manager,*  
*Accounting Department*  
KATHLEEN A. O'NEIL, *Manager,*  
*Accounting Department*

### BUILDING SERVICES

RALPH A. CANN, III, *Vice President*  
MATTHEW C. DREXLER, *Manager,*  
*Building Operating Department*

### SERVICE

RICHARD VOLLKOMMER, *Vice President*  
LOUIS J. BRENDL, *Assistant Vice President*  
RONALD E. LONG, *Manager,*  
*Records, Printing, and Postal Services Department*  
ROBERT V. MURRAY, *Manager,*  
*Protection Department*  
RUTH ANN TYLER, *Manager,*  
*Service Department*

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\*On leave of absence.

### BANK SERVICES

THOMAS C. SLOANE, *Senior Vice President*  
and *Senior Adviser*  
BRUCE A. CASSELLA, *Bank Services Officer*  
EUGENE P. EMOND, *Bank Services Officer*

### BANK SUPERVISION

RONALD B. GRAY, *Senior Vice President*  
A. MARSHALL PUCKETT, *Vice President*  
FREDERICK C. SCHADRACK, *Vice President*  
\*NEAL M. SOSS, *Vice President*  
STEPHEN G. THIEKE, *Vice President*  
EDWARD F. KIPFSTUHL, *Chief Examiner*  
LEON KOROBOW, *Assistant Vice President*  
BENEDICT RAFANELLO, *Assistant Vice President*  
JOHN M. CASAZZA,  
*Assistant Chief Examiner*  
GEORGE R. JUNCKER, *Manager,*  
*Consumer Affairs and*  
*Bank Regulations Department*  
FRANKLIN T. LOVE, *Manager,*  
*Supervision Support Department*  
A. JOHN MAHER,  
*Assistant Chief Examiner*  
THOMAS P. MCQUEENEY,  
*Assistant Chief Examiner*  
WILLIAM L. RUTLEDGE, *Manager,*  
*Domestic Banking Applications Department*  
DONALD E. SCHMID, *Manager,*  
*Bank Analysis Department*  
BETSY BUTTRILL WHITE, *Manager,*  
*Banking Studies Department*

### ECONOMIC ADVISER

RICHARD G. DAVIS, *Senior Economic Adviser*

## Officers (Continued)

### FOREIGN GROUP

SAM Y. CROSS, *Senior Vice President*

### FOREIGN EXCHANGE

MARGARET L. GREENE, *Vice President*  
CHARLES M. LUCAS, *Assistant Vice President*  
THOMAS J. CAMPBELL, *Manager,*  
*Foreign Exchange Department, and*  
*Assistant Secretary*  
PATRICIA H. KUWAYAMA, *Manager,*  
*Foreign Exchange Department*  
PATRICIA A. REVEY, *Senior Economist*

### FOREIGN RELATIONS

H. DAVID WILLEY, *Vice President*  
JOHN HOPKINS HEIRES, *Adviser*  
GEORGE W. RYAN, *Assistant Vice President*  
GEORGE R. ARRINGTON, *Manager,*  
*Foreign Relations Department*  
GEORGE H. BOSSY, *Manager,*  
*Foreign Relations Department*  
FRANCIS J. REISCHACH, *Manager,*  
*Foreign Relations Department*

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### LEGAL

JAMES H. OLTMAN, *General Counsel*  
ERNEST T. PATRIKIS, *Deputy General Counsel*  
DON N. RINGSMUTH, *Assistant General Counsel*  
DONALD L. BITTKER, *Assistant Counsel*  
ROBERT N. DAVENPORT, JR., *Assistant Counsel*  
BRADLEY K. SABEL, *Secretary*  
*and Assistant Counsel*  
MINDY R. SILVERMAN, *Assistant Counsel*  
WALKER F. TODD, *Assistant Counsel*  
RALEIGH M. TOZER, *Assistant Counsel*

### LOANS AND CREDITS

CHESTER B. FELDBERG, *Vice President*  
GARY HABERMAN, *Manager,*  
*Credit and Discount Department*  
ROBERT C. PLOWS, *Manager,*  
*Credit and Discount Department*

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### MANAGEMENT PLANNING GROUP

THOMAS C. SLOANE, *Senior Vice President*  
*and Senior Adviser*

### PERSONNEL

ROBERTA J. GREEN, *Vice President*  
TERRENCE J. CHECKI, *Assistant Vice President*  
MICHAEL J. LANGTON, *Manager,*  
*Personnel Department*  
CLIFFORD N. LIPSCOMB, *Manager,*  
*Personnel Department*  
ROBERT C. SCRIVANI, *Manager,*  
*Personnel Department*

### PLANNING AND CONTROL

SUZANNE CUTLER, *Vice President*  
ROBERT T. FALCONER, *Assistant Vice President*  
ROBERT M. ABPLANALP, *Manager,*  
*Management Information Department*

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### OPEN MARKET OPERATIONS

PETER D. STERNLIGHT, *Senior Vice President*  
PAUL MEEK, *Monetary Adviser*  
IRWIN D. SANDBERG, *Vice President*  
MARY R. CLARKIN, *Senior Trading Officer*  
FRED J. LEVIN, *Manager,*  
*Securities Department*  
JOAN E. LOVETT, *Securities Trading Officer*  
ANN-MARIE MEULENDYKE,  
*Research Officer and Senior Economist*  
EDWARD J. OZOG, *Manager,*  
*Securities Department*

### OFFICE OF THE PRESIDENT

CATHY E. MINEHAN, *Assistant Vice President*

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### OPERATIONS GROUP

PAUL B. HENDERSON, JR., *Senior Vice President*  
GERI M. RIEGGER, *Vice President and*  
*Automation Adviser*

### CASH PROCESSING

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GARY S. WEINTRAUB, *Cashier*

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**BUILDING OPERATING; CASH; PROTECTION**  
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### COLLECTION, LOANS, AND FISCAL AGENCY; PERSONNEL; SERVICE

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